**Chapter 01**

**Test Bank: Portable Electronics: The Periodic Table in the Palm of Your Hand**

1. The quantity 0.0000064 g expressed in scientific notation.

A. 6.4 × 106 g

**B.** 6.4 × 10¯6 g

C. 6.4 × 107 g

D. 6.4 × 10¯7 g

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.08*

*Subtopic: Scientific Notation*

*Topic: Study of Chemistry*

Feedback: Negative powers of ten move the decimal to the left.

2. The quantity 8.7 × 105 g expressed in standard decimal notation.

A. 0.000087 g

B. 870.000 g

C. 0.0000087 g

**D.** 870,000 g

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.08*

*Subtopic: Measurements*

*Subtopic: Scientific Notation*

*Topic: Study of Chemistry*

Feedback: Positive powers of ten move the decimal to the right.

3. A substance that can be broken down into two or more simpler substances by chemical methods is called a(n)

**A.** compound.

B. mixture.

C. element.

D. isotope.

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Classification of Matter*

*Subtopic: Fundamental Definitions*

*Topic: Components of Matter*

*Topic: Study of Chemistry*

Feedback: Mixtures are separable by physical means.

4. On a Periodic Table, the columns of elements with similar properties are

A. periods.

**B.** groups.

C. rows.

D. metals.

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Periodic Table*

*Topic: Components of Matter*

*Topic: Study of Chemistry*

Feedback: Periods and rows go across.

5. The most numerous of the elements are the

**A.** metals.

B. nonmetals.

C. metalloids.

D. noble gases.

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Periodic Table*

*Topic: Components of Matter*

Feedback: These are green in the periodic table in your textbook.

6. Which is not a mixture?

A. A jar filled with rocks and sand

B. Sea water

C. A glass of Kool-Aid

**D.** Sodium chloride

*Accessibility: Keyboard Navigation*

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Fundamental Definitions*

*Subtopic: Properties of Matter*

*Topic: Components of Matter*

Mixtures include more than one pure substance.

7. Which is not a pure substance?

A. Helium

B. Copper wire

**C.** Air

D. Sucrose

*Accessibility: Keyboard Navigation*

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Properties of Matter*

*Topic: Components of Matter*

Feedback: Mixtures are not pure substances.

8. Which squares contain mixtures?



A. II and III only

**B.** III and IV only

C. I, III, and IV only

D. I and IV only

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Molecules*

*Subtopic: Properties of Matter*

*Topic: Components of Matter*

Feedback: Mixtures will have different substances in the same box.

9. Which square(s) contain(s) only an element?



A. I only

**B.** II only

C. I and II only

D. III and IV only

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Elements*

*Subtopic: Fundamental Definitions*

*Topic: Components of Matter*

Feedback: Elements will only have one type of atom in the box.

10. Which symbols represent only elements that are metals?



**A.** X and Z

B. X and Q

C. P and L

D. X, R, P, and Q

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Periodic Table*

*Topic: Components of Matter*

Feedback: Nonmetals reside in the upper right corner of the periodic table.

11. Which symbol(s) represent(s) elements in the noble gas family?



A. X and Z

B. P and L

**C.** Q

D. Y

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Scientific Method*

*Topic: Components of Matter*

Feedback: Noble gases are in the far right column of the periodic table.

12. Which differentiates a compound from a mixture of two or more elements?

A. The elements in a compound may be present in varying proportions

**B.** A compound does not exhibit the individual properties of the elements of which it is composed

C. A compound is made up of only one element

D. A compound cannot be made up of more than two elements

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Classification of Matter*

*Subtopic: Fundamental Definitions*

*Topic: Components of Matter*

Feedback: Remember that compounds are elements bound together by chemical bonds.

13. Which substance is an element?

A. NO2

B. NaCl

**C.** N2

D. CH4

*Accessibility: Keyboard Navigation*

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Elements*

*Topic: Components of Matter*

Feedback: Only one has just one symbol in the formula.

14. A(n) \_\_\_\_\_\_\_\_ is a fixed number of atoms held together by chemical bonds in a certain spatial arrangement.

A. element

B. ion

**C.** molecule

D. mixture

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Fundamental Definitions*

*Subtopic: Molecules*

*Topic: Components of Matter*

Feedback: Remember which of these have more than one element that are also bonded together.

15. Which diagram(s) best represent(s) only diatomic molecules?



A. I only

**B.** II only

C. I and II only

D. II and IV only

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.06*

*Subtopic: Elements*

*Subtopic: Molecules*

*Topic: Components of Matter*

Feedback: The prefix di- means two.

16. Which diagram(s) best represent(s) only molecules?



A. I only

B. II only

C. III only

**D.** I and II only

E. IV only

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Classification of Matter*

*Subtopic: Elements*

*Subtopic: Molecules*

*Topic: Components of Matter*

Feedback: Molecules have multiple atom bound together.

17. Which diagram(s) best represent(s) only individual atoms?



A. I only

B. II only

**C.** III only

D. IV only

E. II and III only

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Elements*

*Subtopic: Molecules*

*Topic: Components of Matter*

Feedback: The atoms are not bound to other atoms.

18. Which of the following is the chemical symbol for silver?

A. Au

B. Pb

**C.** Ag

D. Fe

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Difficulty: Medium*

*Section: 01.01*

*Subtopic: Periodic Table*

*Topic: Components of Matter*

19. Which of the following is a pure substance?

A. Lemonade

B. Concrete

C. Gasoline

**D.** Silver wire

*Accessibility: Keyboard Navigation*

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Classification of Matter*

*Topic: Components of Matter*

Feedback: Remember that pure substances have only one component.

20. Which square(s) contain(s) only one or more compounds?



**A.** I only

B. II only

C. I and IV only

D. II and III only

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.01*

*Subtopic: Elements*

*Subtopic: Molecules*

*Subtopic: States of Matter*

*Topic: Components of Matter*

Feedback: Different compounds will have different combinations of different elements.

21. How many protons, neutrons, and electrons are there in a neutral atom of 19/9 F?



A. A

B. B

C. C

**D.** D

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.04*

*Subtopic: Atomic Mass*

*Subtopic: Atomic Symbol*

*Topic: Components of Matter*

Feedback: Remember that the mass is protons plus neutrons while protons must equal electrons for a neutral atom.

22. In the periodic table, which elements typically have similar properties?

A. Those in the same rows

B. Those related diagonally

**C.** Those in the same columns

D. Those on opposite sides

*Accessibility: Keyboard Navigation*

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.04*

*Subtopic: The Periodic Table*

*Topic: Components of Matter*

Feedback: Groups are those with similar properties.

23. The nucleus of an atom contains

A. electrons and protons only.

B. protons only.

C. electrons, protons, and neutrons.

**D.** protons and neutrons only.

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.04*

*Subtopic: Atomic Structure*

*Topic: Components of Matter*

Feedback: Remember that the massive particles are in the nucleus while the electrons orbit around the outside.

24. What distinguishes the atoms of one element from another?

A. The number of neutrons

B. The number of protons plus neutrons

**C.** The number of protons

D. The number of neutrons plus electrons

*Accessibility: Keyboard Navigation*

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.04*

*Subtopic: Atomic Number*

*Subtopic: Atomic Symbol*

*Topic: Study of Chemistry*

Feedback: Remember that the number of protons is the atomic number and that defines who the element is.

25. The atomic number is the

A. same as the mass number of an atom.

**B.** number of protons in a nucleus.

C. number of protons and neutrons in a nucleus.

D. number of neutrons in a nucleus.

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.04*

*Subtopic: Atomic Number*

*Topic: Study of Chemistry*

Feedback: The protons define the element.

26. Which corresponds to the composition of the ion typically formed by fluorine?



A. A

**B.** B

C. C

D. D

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.07*

*Subtopic: Ions*

*Topic: Components of Matter*

Feedback: Remember that fluorine is a halogen that needs one electron to make an octet.

27. Which corresponds to the composition of the ion typically formed by magnesium?



A. A

B. B

C. C

**D.** D

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.07*

*Subtopic: Ions*

*Topic: Components of Matter*

Feedback: Remember that the 2A group make 2+ ions.

28. The numbers 1 through 4 are used to identify four different elements on the periodic table. Which element is expected to have 2+ charge when it forms an ion?



**A.** 1

B. 2

C. 3

D. 4

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.07*

*Subtopic: Ions*

*Topic: Components of Matter*

Feedback: Remember that the 2A Groups makes 2+ ions.

29. How many bromide ions can combine with one ion of aluminum to form an ionic compound?

**A.** 3

B. 6

C. 1

D. 2

*Accessibility: Keyboard Navigation*

*Bloom's Level: 2. Understand*

*Chapter: 01*

*Section: 01.07*

*Subtopic: Ions*

*Topic: Components of Matter*

Feedback: Remember that the positive and negative charges must balance evenly.

30. The majority of new smartphones being released have displays that are at least 5 inches in size. What is this size in centimeters? (There are 2.54 cm in one inch.)

A. 1.97 cm

B. 6.10 cm

**C.** 12.7 cm

D. 60.0 cm

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.02*

*Subtopic: Unit Conversion*

*Topic: Study of Chemistry*

31. Which one of the following compounds is considered to be an ionic compound?

A. NO

B. CCl4

**C.** LiF

D. PI3

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.03*

*Subtopic: Classification of Matter*

*Topic: Study of Chemistry*

32. Which one of the following compounds is considered to be a molecular compound?

**A.** PCl3

B. NaBr

C. Al2O3

D. Mg3P2

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.03*

*Subtopic: Classification of Matter*

*Topic: Study of Chemistry*

33. One common class of minerals are aluminosilicates, with a general formula of Al2SiO5. What is the atomic percentage composition of aluminum in an aluminosilicate?

A. 12.5 percent Al

**B.** 25 percent Al

C. 33.3 percent Al

D. 62.5 percent Al

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.03*

*Subtopic: Chemical Formulas*

*Topic: Components of Matter*

34. Which one of the following is a subatomic particle located in the center of the atom and has a positive charge?

**A.** Protons

B. Neutrons

C. Electrons

D. Photons

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.04*

*Subtopic: Atomic Structure*

*Topic: Components of Matter*

35. Which one of these materials is most likely to conduct heat?

**A.** A titanium rod

B. A sample of chlorine gas

C. A silicon wafer

D. A chunk of phosphorus

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.05*

*Subtopic: Properties of Matter*

*Topic: Study of Chemistry*

36. What type of material is defined as having a well-ordered atomic structure?

A. Amorphous

**B.** Crystalline

C. Transparent

D. Opaque

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.09*

*Subtopic: Properties of Matter*

*Topic: Study of Chemistry*

37. What are the three pillars of sustainability?

A. Reduce, reuse, recycle

B. Equitability, justice, quality of life

C. Diversity, efficiency, toxicity

**D.** Environmental, social, economic

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.10*

*Subtopic: Fundamental Definitions*

*Topic: Study of Chemistry*

38. Which country is the world’s leading producer of rare earth elements?

A. USA

**B.** China

C. South Africa

D. Brazil

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.11*

*Subtopic: Elements*

*Topic: Components of Matter*

39. A recent set of advertisements has a picture of an aluminum can with an aluminum-frame bicycle, along with a hypothetical quote from the can that reads: “I want to be a bike. Recycle me.” The analysis of the life cycle of an item starting with its raw materials and ending with the used item becoming the raw material for new products is called

A. cradle-to-grave.

B. reusability.

**C.** cradle-to-cradle.

D. cost-benefit analysis.

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.11*

*Subtopic: Elemental Cycling*

*Topic: Environmental Chemistry*

40. Which one of the following is an example of a homogeneous mixture?

A. A chocolate chip cookie

**B.** A glass of pulp-free lemonade

C. A carbonated beverage

D. A bowl of cereal in milk

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.06*

*Subtopic: Classification of Matter*

*Topic: Study of Chemistry*

41. What is the density of a block of material that is 12 cm x 6 cm x 2 cm and has a mass of 356 g?

A. 1.00 g/cm3

**B.** 2.47 g/cm3

C. 3.56 g/cm3

D. 4.95 g/cm3

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.09*

*Subtopic: Dimensional Analysis/Unit Conversion*

*Topic: Study of Chemistry*

42. How many cm are in 0.129 m?

A. 1.29 cm

**B.** 12.9 cm

C. 129 cm

D. 1290 cm

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.02*

*Subtopic: Dimensional Analysis/Unit Conversion*

*Topic: Study of Chemistry*

43. What term is defined as the flow of electrons from one location to another?

A. Resistance

B. Transparency

C. Density

**D.** Electricity

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.05*

*Subtopic: Properties of Matter*

*Topic: Study of Chemistry*

44. A sample of silicon rejected for use in an electronic circuit has an impurity of boron at a level of 3 parts per trillion. What is the fraction of boron atoms in the silicon sample as written in scientific notation?

**A.** 3 x 10-9

B. 3 x 109

C. 3 x 10-12

D. 3 x 106

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.08*

*Subtopic: Scientific Notation*

*Topic: Study of Chemistry*

45. What is the term used to describe a material that allows light to mostly pass through it?

A. Reflective

B. Porous

**C.** Transparent

D. Absorbtive

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.09*

*Subtopic: Properties of Matter*

*Topic: Study of Chemistry*

46. How many protons are in an atom of carbon?

A. 2

B. 4

**C.** 6

D. 12

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.04*

*Subtopic: Atomic Structure*

*Topic: Components of Matter*

47. Oxidation and reduction of atoms involves a change in the number of \_\_\_\_\_\_\_\_\_\_\_ in the atom.

**A.** electrons

B. protons

C. neutrons

D. nuclei

*Accessibility: Keyboard Navigation*

*Bloom's Level: 1. Remember*

*Chapter: 01*

*Section: 01.07*

*Subtopic: Types of Chemical Reactions*

*Topic: Chemical Reactions*

48. One of the lightest smartphones on the market today weighs 113 g. To protect your phone, you may want to use a screen protector, which weighs 27.2 g, and a heavy duty phone case, which weighs 114 g. What is the total weight of the phone, screen protector, and case?

A. 254.20 g

B. 254.2 g

**C.** 254 g

D. 250 g

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.07*

*Subtopic: Significant Figures*

*Topic: Study of Chemistry*

49. A computer chip was weighed and found to have a mass of 23.3040 g. How many significant figures does this number have?

A. 4

B. 5

**C.** 6

D. 7

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.07*

*Subtopic: Significant Figures*

*Topic: Study of Chemistry*

50. What is the answer to the following mathematical operation? 1.42 + 9.4 x 2.854

**A.** 30.8

B. 30.82

C. 30.88028

D. 31

*Accessibility: Keyboard Navigation*

*Bloom's Level: 3. Apply*

*Chapter: 01*

*Section: 01.07*

*Subtopic: Significant Figures*

*Topic: Study of Chemistry*

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